

LD 30: Network and Signaling Diagnostic

This program is used to maintain Network loops. It may be run in background, loaded during the daily routines or loaded manually to enter commands.

Program operation

When invoked automatically by the system, the program performs the following tests:

- network memory of each enabled network card
- continuity of the speech path to each PE shelf (for enabled loops only)
- signaling channel to each line or trunk card (on enabled loops only)
- signaling channel through each Integrated Services digital line card to each Digital telephone or data TN
- clock controllers are switched (if either DTI2 or PRI2 are used when LD 30 is run in midnight mode, clock controllers will not be switched)

For the Integrated Voice Messaging System (IVMS), the program does not test Automatic Call Distribution (ACD) positions when the positions belong to IVMS-DN groups.

Digital telephones that pass the signaling test have their date and time updated to match the system clock.

Any SL-1 telephone or card that fails the signaling test may be disabled by this program. Use LD 32 to re-enable them.

If two or more PE cards are disabled on a loop, an NWS101 message is printed without the associated NWS301 messages to indicate card failures. However, the shelves that failed are known from the NWS201 messages. Therefore, the state of the individual cards can be determined by manually retesting using the SHLF command.

If NWS301 indicates a failure of the Peripheral Buffer or Controller card, the message may not be correct. Therefore the card should be retested using the SHLF command.

This program does not test attendant consoles or Automatically Identified Outward Dialing (AIOD) trunks. Equipment which has been disabled due either to overload or manual request is not tested.

On Option 11 systems, a continuity test and signaling test on the XPE shelf is performed when LD 30 is invoked automatically.

How to use LD 30

When invoked manually on systems other than Option 11, the Overlay may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks
- conduct a test on a specific PE shelf
- get the enable/disable status of network loops
- enable or disable network loops
- clear alarm indications and the maintenance display
- download peripheral software on superloops
- clear contents of the Controller maintenance display
- read contents of the Controller maintenance display

When invoked manually on an Option 11 system, the program may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks

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- clear alarm indications and the maintenance display
 - perform a signaling test on a specific card or unit
 - perform a continuity test and signaling test on the Option 11 XPE shelf
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Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISL loop	Disable loop
DISL sl	Disable specified superloop.
END	Abort current test
ENLL loop	Enable network loop
ENLL sl	Enable specified superloop.
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
SHLF l s	Test loop l, shelf s
STAT	Get status of all network loops
STAT (loop)	Get status of specified loops
TTSM loop x y z	Test Time Switch Memory (TSM) of a loop
TTWI loop x y z	Test TSM when the timeslot junctor is idle

Option 11 commands

The following commands are applicable to Option 11 systems:

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
END	Abort current test
TEST	Perform a continuity test and signaling test on Option 11 XPE shelf
UNTT c (u)	Perform a signaling test on a specified card or unit

Superloop commands

The following commands are used with Controllers (NT8D01) and Network Cards (NT8D04 or NT8D18).

CPED I s	Clear contents of Controller maintenance display on loop I shelf s
DISL loop	Disable loop
END	Abort current test
ENLL loop (v)	Enable superloop, download peripheral software version v
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
RPED I s	Read contents of the Controller maintenance display
SHLF I s	Test loop I, shelf s
STAT	Get status of all network loops
STAT (loop)	Get status of specified loop
UNTT I s c (u)	Do a signaling test on specified card or unit

Basic Rate Interface (BRI) commands

The following commands are used with Multi-purpose ISDN Signal Processor (MISP), S/T-Interface Line (SILC), and U-Interface Line (UILC) cards.

SLFT l s c	Invoke self-test on ISDN BRI line card
SLFT l s c type	Selftest ISDN BRI line card. The card must be disabled. Response is: NWS637 selftest passed or NWS632 selftest failed. Where: l = loop, s = shelf, c = card, and type = self-test type (Long or Short)
STEI l s c d	Query the Terminal Endpoint Identifiers, and their corresponding USIDs This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like: MISP 111 TEI USID --- ---- nnn nnnn
SLFT loop type	Invoke self-test on MISP loop. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT l s c d	Perform TEI check on Digital Subscriber Loop d (0-7)

Option 11 BRI commands

SLFT card	Invoke self-test on ISDN BRI line card.
SLFT card type	Invoke self-test on MISP card. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT c d	Perform TEI check on Digital Subscriber Loop d (0-7).

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CPED l s	Clear contents of Controller maintenance display on loop l shelf s. This also clears the buffer printed with the command RPED.	xpe-15
DISL loop	Disable loop. All calls in progress on this loop are disconnected. Peripheral cards remain software enabled and no LEDs are lit.	basic-1
DISL sl	Disable specified superloop. Active calls on the superloop specified will be disconnected and line transfer will occur at the remote end.	basic-21
END	Abort current test. If no test is in progress, message NWS002 is output.	basic-1
ENLL loop	Enable network loop. This enables the network, performs a network memory test and tests continuity and signaling to all shelves on the loop. If it passes the test, OK is output. This does not re-enable any disabled cards on the loop. Use LD 32 ENLS or ENXP commands or enable each card individually. When enabling a network loop serving ISDL cards, the ISDL cards must be individually disabled, then re-enabled to ensure that service is restored to digital telephones. Service may also be restored to digital telephones by disconnecting and then reconnecting the telephone's line cord.	basic-1

ENLL loop (v)	Enable superloop, download peripheral software version v. If version v is not specified, the software downloaded is current (c) or latest (l) version as defined in LD 97.	xpe-15
ENLL sl	Enable specified superloop. OK is output if superloop has been enabled. Establishing service of individual voice-and-data-capable carriers is dependant on the F/W state of that carrier.	basic-21
LDIS	List disabled loops. Response is: • 11, 12, 1n: loop is a disabled loop, or • NONE: if no cards are disabled.	basic-1
LENL	List enabled loops. Response is: • 11, 12, 1n: l is an enabled loop, or • NONE: if no cards are enabled.	basic-1
LOOP loop, ALL	Test network memory on one or all loops. Performs a network memory test, continuity test and signaling test on the specified loop, which can be either a value from 0 to 159 or ALL. If ALL is specified, every loop currently enabled is tested. All shelves on each loop are tested (except for attendant consoles). If no errors are detected, OK is output. With X11 Release 20 and later, this command is used for XOPS cards. Out-of-Service units are not tested when this command is used. The range for units is 0-31, but only 0-7 are allowed on the XOPS card.	basic- 20
RPED l s	Read contents of the Controller maintenance display. This command lists the current and last 15 clock tracking states of the NT8D01 Controller. The tracking is indicated on the Controller maintenance display. The possible tracking modes are: C0 = Controller is tracking to the network connected to port 0. C1 = Controller is tracking to the network connected to port 1. C2 = Controller is tracking to the network connected to port 2. C3 = Controller is tracking to the network connected to port 3. CF = Controller is not tracking any network. See HEX messages for the interpretation of Controller maintenance display codes.	xpe-15

SHLF l s	Test loop l, shelf s. Performs a network memory test, continuity test and signaling test only on loop l shelf s. All line cards, idle trunk cards (except AIOD trunks) and idle SL-1 telephones are tested. If no errors are detected, OK is output. With X11 Release 20 and later, this command is used for XOPS cards. Out-of-service units are not tested when this command is used.	basic- 20
SLFT card	Invoke self-test for ISDN BRI line card. The card must be disabled. Response is: NWS632 self-test failed or NWS637 self-test passed (Option 11 only)	bri-18
SLFT l s c	Invoke self-test for ISDN BRI line card. The card must be disabled.	bri-18
SLFT l s c type	Self-test ISDN BRI line card. The card must be disabled. Response is: NWS637 selftest passed, or NWS632 selftest failed, where: • l = loop • s = shelf • c = card • type = self-test type (Long or Short)	rsc/bri-19
SLFT card type	Invoke self-test for MISP card on Option 11. The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is: NWS632 self-test failed, or NWS637 self-test passed type = 1 (comprehensive), or type = 2 (power-on-reset)	bri-18
SLFT loop type	Invoke self-test for MISP card. The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is: NWS632 self-test failed or NWS637 self-test passed • type = 1 (comprehensive), or • type = 2 (power-on-reset)	bri-18

STAT	Gives status of network loops (circuits), indicating how many are enabled and how many are disabled. Response is: <code>x ENBL, y DSBL</code>	basic-1
STAT loop	Get status of a network loop. Response is one of the following: 1. <code>UNEQ</code> = loop is unequipped. 2. <code>DSBL: RESPONDING</code> = loop is disabled and the Network card is responding. The loop may have been disabled because of: - a <code>DISL</code> command - b associated Peripheral Signaling (PS) card is disabled - c overload condition on associated loop. In this case an OVD message is output. An attempt to enable the loop may result in a recurrence of the overload. 3. <code>DSBL: NOT RESPONDING</code> = loop is disabled and the Network card is not responding. The card is missing, disabled by the faceplate switch or is faulty. 4. <code>x BUSY, y DSBL</code> = loop is enabled with <code>x</code> channels busy, <code>y</code> channels disabled. 5. <code>CTYF 11, 12...</code> = loop specified in the STAT command cannot receive speech from one or more loops (11, 12). This usually indicates the LD 30 continuity test failed. Probable fault is the network card.	basic-1
STEI l s c d	Query the Terminal Endpoint Identifiers, and their corresponding USIDs This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like: <pre> MISP 111 TEI USID --- ---- nnn nnnn </pre>	brsc-19
TEIT c d	Perform TEI check on Digital Subscriber Loop <code>d</code> (0-7) on Option 11. This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.	bri-18

TEIT l s c d	Perform TEI check on Digital Subscriber Loop d (0-7).	bri-18
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This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.

TEST	Perform a continuity test and signaling test on Option 11 XPE shelf.	basic-1
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TTSM loop x y z		basic-1
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Test Time Switch Memory (TSM) of a loop.
Tests the Time Switch Memory (TSM) of the network card.

Where:

loop = the network loop that may have a faulty TSM.

x = the network loop of the transmitting party.

y = the junctor used on the transmitting side of the call. Its value has a range of 0 to 7, unless the two loops are in the same group, in which case the junctor value to be entered is 15.

z = the timeslot used on the transmitting side of the call. Its value has a range of 2 to 31.

The values normally used in this command are the same values that appeared in the ERR3036 or ERR3037 message during call processing.

TTWI loop x y z		basic-1
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Test TSM when the timeslot junctors are idle. The command is usually used if error message NWS800 is output in response to TTSM.

Where:

loop = the network loop that may have a faulty TSM.

x = the loop ID (range 0 to 159) of the transmitting party.

y = the junctor used on the transmitting side of the call. Its value has a range of 0 to 7, unless the two loops are in the same group, in which case the junctor value to be entered is 15.

z = the timeslot (2-31) used on the transmitting side of the call.

This command waits for the timeslot z and junctor y to become available and will then execute the command.

LD 30

UNTT c (u)	Do a signaling test on specified card or unit on Option 11	xpe- 20
UNTT I s c (u)	Do a signaling test on specified card or unit. This command applies only to superloops. With X11 Release 20 and later, this command is used for XOPS cards. Out-of-service units are not tested when this command is used. The range for units is 0-31, but only 0-7 are allowed on the XOPS card.	xpe- 20
